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CLINICAL MEDICINE

ORIGINAL ARTICLES

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1947

No. 11

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ORIGINAL ARTICLES



Hydrogen Ion Concentration of the Vagina During Menstrual Flow*

By KARL JOHN KARNAKY, M.D., Houston, Texas

OBERST and Plass (1) reported hydrogen ion concentration during menstruation in normal and abnormal vaginas. They reported the pH in the anterior and posterior fornices and observed during menstruation a variation of from pH 4.47 to pH 7.15, and an average of pH 5.89 in the anterior fornix and pH 6.23 in the posterior fornix in the normal nonpregnant women.

From a review of the literature, it appears that no one has reported the hydrogen ion concentration (pH) of the posterior and anterior fornices and right and left lateral walls of the vagina during the actual menstrual flow. This is the purpose of this paper.

Technic of Determining Hydrogen Ion Concentration

A Beckman pH meter, calibrated with acetic acid to pH 4.64 at 25° C. is used. The temperature control is then set back to 35° C., the average temperature of a vagina exposed to room temperature by a vaginal speculum.

Rakoff's vaginal electrodes are attached to the Beckman pH meter. The points of the vaginal electrodes are

placed on the desired area of the vaginal mucosa and the resulting hydrogen ion concentration (pH) read directly off from a special scale on the pH meter.

Experimental Data and Results

The hydrogen ion concentrations of menstrual blood collected as it came out of the external os of the cervix in 20 consecutive patients was from pH 7.11 to pH 7.45.

Hydrogen ion concentrations of 16 consecutive normal vaginas were determined during the actual menstrual flow.

Chart I gives the ages, day of menstrual flow, and pH of posterior fornix, anterior fornix, left and right lateral walls in their middle third.

Discussion

Stimulation of the vaginal mucosa by estrogen and progesterone results in deposition of glycogen in the vaginal mucosa. Acidity of the vagina results from the break down of glycogen in the vaginal mucosa, producing an acid vagina. Menstrual blood (pH 7.11 to 7.45) mixed with the normal vaginal secretion with a pH of 4.0 to 5.0 acidity may be the cause of the average pH of 5.72.

Conclusions

The hydrogen ion concentrations of

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16 consecutive normal appearing vaginas during menstruation were determined. The average pH of anterior fornices was 5.80, posterior fornices, 5.86, of left lateral wall 5.54, of right lateral wall 5.60, the average of all areas, pH 5.72. The lowest pH was 4.07 and the highest was 8.16. The anterior fornix was 5336 times less hydrogen ions than the normal vagina; the posterior fornix, 4128 times less hydrogen ions; the left lateral wall 4283 times less hydrogen ions; and the right lateral wall 3215 times less hydrogen ions than the normal vagina. The average of all areas was 4274 times less hydrogen ions than the normal average.

326 Medical Arts Bldg.

REFERENCES

1. Oberst, F. W., and Plass, E. D., *Am. J. Ost. & Gynec.* 1936, 32:27.

2 Rakoff, A. E., Proceedings of conference sponsored by National Committee of Maternal Health. 1943. Jan. 15-16, p. 109, New York City.

Foot-note: Menstrual blood alters the hydrogen ion concentration (pH) of the vagina because the pH of menstrual blood is 7.0 to 7.7. If the pH is 5.0 to 5.5, then the alkaline menstrual blood causes the vagina to become a pH of 6.5 to 7.4.

Therefore, during menstruation, in vaginal infection, one should use acid douches (vinegar, one tablespoonful to douch bag or can) two to five times a day.

If vinegar douches are used, then some of the abnormal vaginal micro-organisms are destroyed.

CHART I
HYDROGEN ION CONCENTRATION (pH) OF VAGINA
DURING MENSTRUAL FLOW

Vagina No.	Age	Day of men- struation	PF	AF	Difference between PF and	LLW	RLW	Average pH all fornices
					AF			
1.	32	1	5.78	5.89	-0.11	4.68	5.13	5.37
2.	21	1	4.22	4.19	0.03	3.93	3.94	4.07
3.	23	1	6.70			6.90		6.80
4.	32	1	6.60	7.20	0.60	6.80	6.80	6.85
5.	29	1	4.47	4.75	-0.60	4.52	4.37	4.52
6.	24	1	6.81	6.52	0.29	6.28	6.49	6.52
7.	28	1	6.18	5.81	0.37	5.58	5.85	5.85
		1	4.58	4.32	0.26	4.61	4.76	4.56
		2	4.88	4.72	0.16	4.42	4.42	4.61
		2	6.23	6.29	-0.06	5.55	5.68	5.93
		3	8.01	8.16	-0.15	7.45	7.45	7.76
		3	4.97	5.13	-0.16	5.09	5.99	5.29
8.	26	1	7.11	7.29	0.18	6.51	7.11	7.00
9.	32	1	4.07	4.13	-0.06	4.55	4.54	4.32
10.	18	2	5.82	6.32	-0.95	5.06	5.37	5.64
11.	38	2	7.91	6.82	1.09	6.46	7.47	7.16
12.	25	2	6.93	5.28	1.65	6.17	5.91	6.07
13.	28	3	5.48	4.67	-0.75	4.69	4.69	4.86
14.	41	3	6.46	6.32	0.14	6.01	6.01	6.15
15.	25	4	5.63	6.88	-1.25	6.02	5.88	6.10
16.	23	4	4.51	5.32	-0.81	5.02	5.09	4.98
pH Averages			5.87	5.80		5.54	5.65	5.72

Abbreviations:

AF —Anterior Fornix
PF —Posterior Fornix
LLW —Left Lateral Wall
RLW —Right Lateral Wall

Average pH of posterior fornix 5.37
Average pH of anterior fornix 5.80
Average pH of left lateral wall 5.54
Average pH of right lateral wall 5.65
Average pH of all fornices and walls 5.72

Long-Term Illness and the Practitioner

By E. M. BLUESTONE, M.D.

Director, Montefiore Hospital, New York City

NO PHYSICIAN, young or old, can escape the implications of long-term illness these days. Whatever the benefits to the acutely sick patient as a result of the application of the great inventions and discoveries of our time, it is the chronically sick patient who is beginning to challenge our imagination as physicians. The plain fact is that the line of demarcation between the two is disappearing and one reason for this manifestation is that we are much better equipped to deal with long-term medicine than ever before. The practitioner who is concerned with his professional standing is being confronted with a problem which he must solve, or help to solve, if he is to be worthy of his hire.

"It is easy to lose interest in the patient who does not respond well to treatment or in whom the condition is so chronic that improvement is slow and minute," writes the editor of this magazine. This is unfortunately true, but why is it true? Is there any hope of a remedy that will be as acceptable to the general practitioner as it is to the patient? The answer is decidedly "yes" if we include the social sciences in the physician's bag.

To begin with, the practitioner, like most people, loses patience with stubborn problems too quickly. He accepts them as a professional chore but shies away from them. He has learned in medical school, and in the "acute" general hospital in which he presumably served his apprenticeship, that "time is money" for teacher and student. Concentration of interest is, however, just as rewarding in the long run even

though therapeutic response is slow and unspectacular. Patience, sustained interest, and optimism are the indispensable virtues of the scientist. If the general practitioner is not a scientist, he can achieve no more than temporary comfort for his patients. In this respect he falls behind the nurse in value to the sick; he is indeed not very far ahead of the cultist who flourishes because he knows the commercial value of a fear complex and magnifies out of all proportion some form of cure which has restricted application.

You will say, of course, that patience does not command a fee and that interest in a sick man cannot be sustained without his financial cooperation, but this is the heart of the problem. Nothing can be more obvious than the principle that the ill-effects of poverty, whether this poverty is financial or medical, must be neutralized somehow by those who have been blessed by a reserve of wealth and health. A way must be found to perpetuate, and gain more respect for, the scientific aspects of medical practice in spite of all handicaps. Furthermore, it must be done in a manner that will enable the doctor to work out his professional and personal destiny in comfort, at reasonable cost to his clientele. Such ways are already known to us. Let me cite a few.

Voluntary group insurance to provide group medical care at all times and in all places is one way of pulling the practitioner out of any rut he may find himself in. Financial subsidies of medical practice by a partnership of tax funds and philanthropy is another. Full-time and part-time medical service under favorable conditions is here to stay

and can be extended. More laboratory facilities in hospitals (using "laboratory" in its broadest sense) is another, as well as more classroom facilities.

Every bed in every hospital, no matter where it is located or by whom occupied, is potentially a teaching bed and potentially a research bed. This undeniable fact should be harnessed for the benefit of the practitioner so that he can share in the scientific wealth. One reason why we have "closed" and not "open" hospitals in most communities where a high grade of medical service is practiced, is because the practitioner is not the man of science that he should be and, indeed, cannot be when he is subjected to the rules of commerce. There are more potential scientists in the medical world than greet the eye or ear. We should, therefore, make every effort to locate and put their talents to use. This will never be done by suppressing opportunity or by letting it radiate casually within a limited arc. Furthermore, there is nothing equal to the problem presented by a long-term patient, in any medical category, to sharpen the wits of the teacher or investigator.

Slow response to treatment may not be as dramatic or as satisfying to anyone, and least of all to the sick man, but it is response in the right direction and, therefore, to be sought as a professional goal in life. No doctor can afford to forget that a reduced mortality rate, as a result of his efforts in short-term ("acute") disease, is not enough if it means a high rate of discomfort for the survivor over a long period of neglect, to the point where life may no longer be worth living for him and, what may be just as unfortunate, for his family. It is not enough for the doctor to be limited to an "on-call" formula. This is, indeed, one of the handicaps of general practice. Scientific interest, to be effective, must be tenacious and must depend on the doctor at least as much as on the patient. The

more stubborn the illness the more stubborn must the doctor be. We must seek ways of making tenacity of this kind pay the doctor a living wage while concentrating his time, and focusing his attention, on a smaller number of patients.

Your editor commissioned me to deal with "the neglected chronic disease or elderly patient." He has been reading about the new trend in geriatrics which has come over the horizon in recent years and so have you, but I must caution you not to be misled by this term if it means anything more to you than improved and continued interest in the aged patient. Geriatrics is much more a social than a medical specialty. In a medical sense, it runs the risk of being considered a lazy man's way of dealing with a vital communal problem. All of the medical specialties are, indeed, represented in geriatrics. The presence of the aged patient among us in increasing numbers, exactly like the presence of the long-term patient, is one of the most significant social phenomena of our time and the practitioner had better so arrange his affairs that he can face the problem successfully. The aged patient is a good "customer" if he has the wherewithal but, if he hasn't, social and medical provision must be made for him. This is the essence of social security.

As you reach the end of this brief argument, you will probably conclude that I am preaching social medicine, in which the traditional prescription is only an incident in a much broader kind of therapy. This is true. The impact of social factors on medical practice must command a much deeper concern on the part of the practitioner than he has thus far shown. He must personally help to solve the problems which they are already creating for him. What I have written here may appear like a counsel of perfection, but—when was the honest physician satisfied with less?

Clinicopathologic Conference (Case 9)

Symptoms: A 20 year old unmarried woman complained of progressive abdominal discomfort, over a period of 3 months. Belching, especially after the evening meal and through the night, was troublesome and the belched gas became foul smelling. Nausea and salivation developed, especially in the morning. Intermittent diarrhea appeared and on 3 occasions foul, black, sticky feces were passed. She lost 9 pounds despite a good appetite. For two weeks, vomiting had appeared immediately after meals. One menstrual period had been missed, but pregnancy was denied.

Examination: Diffuse, slight, abdominal tenderness, more marked in the subziphoid region; temperature, pulse, respirations, blood pressure, urine were normal; hemoglobin 12.7 gm. (slightly below normal), red cells 4,400,000; chemical test of stool for blood was negative; gastric analysis indicated no free acid and 12 units of total; after

histamine injection, 10 units of free and 11 of total.

X-ray: Patient vomited most of the barium, but a definite ring shaped defect about 3 cm. long was found in the antrum; a narrow channel led through the antrum and pylorus to a normal duodenal bulb. Chest x-ray was normal. No lesion was visualized on gastroscopy. An Ascheim-Zondek test for pregnancy was positive.

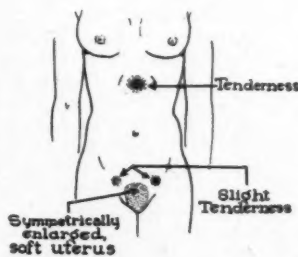
Discussion: From the history of amenorrhea and a positive Ascheim-Zondek test, one might be justified in attributing the symptoms to emotional trauma, and the nausea and vomiting to pregnancy. The story is that of an increasing obstruction in the upper intestinal tract, presumably a pylorospasm of functional or organic nature. Since no iron or bismuth was taken, the black, sticky stools probably represented bleeding in the bowel. The clinical diagnosis was either carcinoma or sarcoma of the stomach.

Unmarried woman
of twenty years



Belching 6 weeks
Nausea A.M.
Salivation especially
Vomiting after every 2 weeks meal
Abdominal distress and crampy pains
Black Feces
Menstruation missed

SYMPTOMS



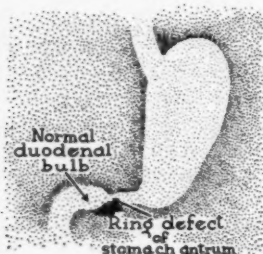
Urine, T.P.R., Normal
R.B.C: 4,400,000
Hb: 12.7 Gm.
Gastric HCL: No free
12 total

EXAMINATION

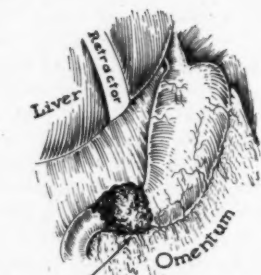
Operation: A large mass was found at the pylorus. The peritoneum was glistening and intact. A number of enlarged nodes were found along the lesser curvature. A high resection was performed with removal of some pancreatic tissue.

Pathologist: A diagnosis could not be made on the gross resected stomach. It

did not seem as firm as carcinoma ordinarily is. Sections showed a scirrhous, colloid carcinoma, with extensive infiltration into the wall of the stomach and metastasis to one of the 7 lymph nodes examined. (Material abstracted from *New England Journal of Medicine*, Original illustrations by *Clinical Medicine*).



OPERATION



Large mass at
Pylorus:
Carcinoma
of
Stomach

Treatment:
Most of stomach
and part of pan-
creas removed

FINDINGS

Convulsions During Ether Anesthesia

Respiratory depression or cessation during ether anesthesia preceeds circulatory failure by a wide margin and serves as a warning signal.

Ether convulsions arise as facial twitchings during deep and prolonged anesthesia and progress to the involvement of limbs and trunk until all muscles are involved. Generalized twitchings may lead to true clonic convulsions whose violence may require restraint of the patient. Respiration is seriously embarrassed by muscle spasm involving the vocal cords, the intercostal muscles and the diaphragm. In 50 percent of cases, the convulsions cease spontaneously and full recovery ensues. In other cases, circulatory failure and death follow recovery from convulsions in a matter of minutes to hours.

Treatment is simple though not uniformly effective. The anesthetic should be withdrawn and oxygen, with or with-

out carbon dioxide, administered. The head should be elevated and the face sponged with cold water. Cardiac stimulants, e. g. coramine, are indicated and a tracheal catheter inserted to overcome laryngospasm. Since convulsions may become so violent as to require restraint and occasionally further anesthesia, curare in doses of 1-3 cc. may be of benefit. Calcium gluconate injections have been reported as helpful (intravenous pentothal is apparently curative—Ed.) Since the complication ordinarily occurs in febrile and dehydrated, patients, prophylaxis includes the parenteral administration of adequate amounts of glucose and saline preoperatively, the maintenance of adequately aerated operating rooms and the cautious and gentle manipulation of patient and tissues during surgery. —LENAHAN and ELLIOTT, *Anesthesia and Analgesia*, 25, 31, 1946.

Local Anesthesia in the Treatment of Abscess

By FRANK D. STANTON, M.D.

The Dover Clinic, Boston, Massachusetts

TO ESTABLISH anesthesia of an area it is usually only necessary to inject the local anesthetic in such a manner as to completely anesthetize the skin. This point must in some way be connected with Hilton's law which says "the nerve trunk which supplies the muscles of any given joint also supplies the muscles which move the joint and the skin over the insertions of such muscles." The more recently developed injection technics for taking care of sprained ankles, inflamed bursae, painful areas of the spine and sacroiliac areas may be included in this technic of injecting the skin and subcutaneous tissues. If the skin is anesthetized then the underlying tissues will be anesthetized.

The opening of an abscess is usually an office procedure. Being a proctologist I shall discuss proctologic abscesses. If a patient is found to have an ischiorectal abscess it is the doctor's duty to open the abscess at once, rather than to waste time in finding an available operating room, and an available surgeon. Every minute that an ischiorectal abscess is permitted to continue developing pus and pressure, complications may develop.

There is also the likelihood that the patient cannot afford hospitalization. To have a patient spend money that he cannot afford in order to buy the above facilities is not fair treatment.

The expert in the treatment of rectal diseases by office methods will use local anesthesia, in the form of monacaine, nupercaine, novocaine, or whatever local anesthetic is the choice of the operator.

The operation may be completed, including the anesthesia, in ten minutes. The patient is ambulant and his suf-

fering has ceased. He will not suffer while his abscess is draining and it will drain better if he is somewhat active, than if he is lying in bed. I do not say that this abscess will get well as a result of incision and drainage. The truth is that, excepting in the rarest cases of extreme good luck, it will not get well. When such an abscess is opened or breaks open spontaneously it is no longer an abscess. It is then a fistula, and should subsequently be treated as a fistula.

Technic: Before doing anything else we should mark what looks like the spot where this abscess would head up if permitted to do so. Unless this spot is marked, we are likely to lose sight of it after the anesthetic is injected. Silver nitrate is satisfactory for making a mark, rather than iodine.

It is even a good idea to mark the lines of the incision which we intend to make after anesthesia is established. This mark should be a line two or three inches long, running more or less parallel to the gluteal cleft and as far away from the anal margin as can properly be done.

The injection of the local anesthetic should be begun at a point about two inches away from the center of the site of incision. After the area is cleansed, a spot should be made on the skin with carbolic acid (phenol 95 per cent), on a wood applicator rather than with a metal probe. The wood will soak up some of the solution and make a discreet spot.

When this small spot is made on the skin, the needle is then inserted into the very superficial layers of the skin. To do this the needle should be laid flat against the skin with the bevel at the end of the needle against the skin. In

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medicine

this way the needle may be inserted into the superficial layers of the skin without hurting the patient.

The first drop of the anesthetic establishes a wheal. The needle may then be carried a bit deeper. Injecting as we go, the needle should be advanced with the idea of forming a complete ring of injected skin around the summit of the abscess. After the first syringe full has been injected, or even before, we should change to a slightly larger needle. I use a one inch twenty-three gauge needle for this. By going around the abscess, injecting liberally into and immediately under the skin, I do what might be looked upon as a "block" anesthesia. If the skin over the summit of the abscess is too thin to admit injection, keep away from it. It will be anesthetized anyhow.

The objections expressed condemning local anesthesia near abscesses are based on the theory that we are likely to spread the infection or get it into the blood stream. This idea got into a book and so will be found in all books

henceforth. It seems strange that if such things are likely to happen that some such thing has not happened here at the clinic where many such operations have been performed.

Do not insert the needle into the abscess cavity. In addition to it being the wrong thing from the technical point it also will, because of the increased pressure, cause pain to the patient.

Incision: We should always be careful to make the incision directly over the point where we think the abscess will erupt if permitted to do so. The incision should be made with a new, sharp pointed blade of the Bard-Parker type. It seems best to make a slit in the skin in order to plainly mark the incision. The scalpel should then be placed at right angles with the skin so as to insert the point of the scalpel into the abscessed cavity. We should not use the scalpel as a bayonet or a harpoon, but keep cutting, not stabbing until the abscess is reached. The opening should be liberal, but packs, wicks or drains are not used.

Back Pain Due to Abdominal Disease

Pain in the back may be the key, or the only symptom, of intra-abdominal disease; including gall stones, peptic ulcer, hernia, pancreatitis, colitis, air in the fundus of the stomach, gas in the colon. Backache may be the only symptom of pancreatic, renal, or retroperitoneal growths.

In differentiating back pain of intra-abdominal origin from that of spinal disease, one should remember that *backache of abdominal source is not accompanied by muscle spasm*, limitation in back movements, or change in spinal curvature. Physical activity may be possible during the day and yet discomfort become acute at night; lying on the back aggravates the condition and the patient is relieved by positions in which the spine is flexed.

A diseased organ may impinge on the posterior peritoneal wall and prevent

sleep by dorsal and lumbar pain. Back pain may indicate that a recognized malignant tumor has extended to retroperitoneal nodes or metastasized to the spine.

Peptic ulcer pain may be felt in the back instead of in the epigastrium but with the usual nocturnal and diurnal rhythm. If severe, such pains usually indicates penetration of an ulcer on the posterior wall of the stomach or duodenum. Hiatus hernia produces pain when the body is supine or prone.

In regional ileitis, pain can be referred to the back. Collection of gas and feces in the splenic flexure of the colon may cause pain in the subcostal lumbar area during the night or early morning, particularly if the patient is constipated.—HENRY J. TUMEN, M. D., and JOSEPH C. YASKIN, M.D. in *Gastroenterology* 7:294-305, 1946.

Methods of Laboratory Diagnosis of Brucellosis*

The patients entering the Clinic can be divided in the three following groups: 1. Those treated by private physicians and sent for laboratory examination; 2. Patients sent to be studied and treated; 3. Patients coming on their own for diagnosis and treatment.

All patients undergo a preliminary blood test and clinical examination. If suspected of having Brucellosis, a complete clinical examination follows with these tests: Determination of agglutinins, opsonic test, allergic test, blood counts and blood cultures.

Preliminary blood test: This is a spot or bedside test which allows a rapid classification of the patients. It is very useful because it is easy to perform and fairly reliable in acute or subacute cases. It is performed by mixing a polyvalent *Brucella* antigen with whole blood; a droplet of it taken with a wire loop of 4 mm. in diameter is mixed on a clean slide with a droplet of blood taken from the ear or finger with a 3 mm wire loop. The mixture is spread to a diameter of about 1.5 cm and the slide submitted to a convenient movement in order to accelerate the reaction, observing it against a suitable light.

Antigen: The antigen is prepared in a similar manner as the antigens for rapid diagnosis of typhus with *Proteus* x-19 (1). It consists in a suspension containing about 100 billion *Brucella* per cc treated for 48 hours with 10 per cent formaline, then washed by centrifugation, stained to a convenient deep blue and standardized to produce positive reactions with whole blood when the titre of the serum is of 100 or more. The material is suspended in isotonic citrate solution with merthiolate as preservative. The elimination of blood samples of low titre is most useful

since this leaves to positives a considerable diagnostic value. It has been found that a mixture of *Br. abortus* and *melitensis* produces antigens of high specificity and suitable sensitivity.

The negative tests show a mixture of greenish color which dries in uniform shade. Positives are quite characteristic: when the mixture is given a rotatory movement the agglutinated antigen separates to the periphery leaving a red center consisting of red cells. If the test is observed against a suitable light, the blue clumps may be seen separating from the red cells. A hand lens is often useful to detect weak reactions.

A negative test may be found in chronic cases of Brucellosis or when the titres of the serum are inferior to 100.

Test tube agglutination: The results of the spot test are corroborated by the tube agglutination test which may be performed with the same blue antigen diluted in a proportion of 0.1 cc in 20 cc. of saline. The titres are slightly lower than those obtained with ordinary *Br. abortus* antigens. If the spot test is of low intensity, very likely corresponding to sera of titres below 1 to 500, the well known test performed according to Huddleson's method is recommended; in cases with strongly positive spot tests the tube method supplies a more accurate information.

Opsonic test: The opsonic test is performed following the method recommended by Huddleson but using instead a suspension of *Br. abortus* (smooth) previously treated during 48 hours with 10 percent formaline, then thoroughly washed and resuspended in saline. The opsonic index is usually lower in intensity than the test performed with live organisms, but the possibility of laboratory accidents and the use of standardized antigens justify the use of formalized organisms. The value of the

*Used in the Department of Medical Research of the General Hospital, Mexico City.

opsonic index is a matter of considerable controversy, but the experience with the infection produced by *Br. melitensis* has shown that by itself the index has relatively little usefulness since in Brucellosis patients it is more important to know how effective is opsonization regardless of its numerical index. Often a patient shows a maximum index of 100 while the actual number of polymorphonuclear leucocytes in the blood stream is below 1,000 cells per cc. On the other hand, a relatively low index, of say 50, would be more useful if the patient had a normal number of polymorphonuclear cells. For these reasons in this laboratory the opsonic index is plotted with the absolute number of polymorphonuclear leucocytes according to the $\frac{Io \times Pa}{Vo}$

$$10^4$$

in which Io stands for opsonic index, Pa absolute number of polymorphonuclear leucocytes and Vo for opsonic value. The Vo has a range of 0 to 45 with 25 as a reasonably good value. Experience shows that when the opsonic value decreases below 15 an increased number of colonies of *Brucella* per cc. of cultivated blood may be expected. However, the Vo is significant only during the acute phase of the disease, being entirely irregular in its relationship to the prognosis during the subacute and chronic phases, i.e. at the moment when the blood culture becomes negative. This modification of the opsonic test would be more significant if a standardized procedure for the measurement of the opsonic phenomenon would be devised and generally accepted.

Allergic test: The intradermal test is one of the most delicate diagnostic procedures. Vaccines are not used because of the danger of antibody stimulation which may interfere with a future diagnosis. During the last 10 years a soluble antigen extracted from *Brucella* (2) has been used. It is highly active in doses not large enough to

stimulate serological changes in the patients. The skin test begins to be positive from the 3rd to the 4th week and remains positive for an indefinite time. It seems to gain in intensity within 3 or 4 months after clinical recovery.

Blood culture: The blood cultures are performed according to a method recently published (3). The medium is placed in ordinary flat 100 or 150 cc. bottles containing a layer of solid medium on one of the sides and about 10 cc. of liquid medium. The blood drawn from the vein with an auto-claved syringe is introduced through the rubber stopper. Every 48 hours the fluid is spread over the agar layer and the bottle replaced in the vertical position, thus preventing bacteriostatic effect of the plasma.

This method of cultivation has been found to give the highest percentage of positive cultures when compared with methods previously used. It saves considerable time and material eliminating manipulations with negative bottles and affords better protection against accidental infection of laboratory workers. It has been possible to cultivate *Br. abortus* without adding CO_2 to the bottles, which seems to indicate that the CO_2 conveyed by the large amount of venous blood is enough to insure the growth of this organism. All cases of acute *Brucella* infection and most subacute cases have given positive blood cultures. — DR. M. RUIZ CASTANEDA.

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Intestinal Obstructions (Paralytic): Auscultation of the Abdomen

Auscultation of the abdomen is of cardinal importance in the diagnosis of paralytic ileus. One should sit beside the right side of the patient's abdomen, and exhort those in attendance to make every effort to be quiet. It is, I consider, essential to be seated, for the cup of the stethoscope must be kept still, perhaps for five full minutes; this is a more exacting undertaking than might be imagined. One often sees the stethoscope applied here and there to the surface of the abdomen, for a matter of seconds; this is useless when an all-important diagnosis of paralytic ileus is at stake.

Apply the stethoscope firmly to the skin just below and to the right of the

umbilicus (Fig. 1), and keep it absolutely still. If there is a gurgle in any part of the abdomen, assuredly it will be heard at this central "listening post." It must be clearly understood we are not concerned here with tumultuous hissing, rumbling sounds associated with intestinal colic; probably the patient has not had any pain recently. What we are so anxious to know is—is the intestine paralyzed? By listening intently and long, it may be that the clinician will hear the faint and fleeting sweet music of a tinkling runnel—proof indeed that peristaltic action, though feeble, is not completely stayed.—

HAMILTON BAILEY, F.R.C.S., 86 Brook St., London, England.



Fig. 1. The cup of the stethoscope should be kept immobile at a central listening point for, if necessary, five minutes, before pronouncing that peristalsis has ceased.

Differentiating Rheumatoid and Osteoarthritis of the Spine

In differentiating rheumatoid arthritis (rheumatoid spondylitis) and osteoarthritis of the spine, the x-ray may be of value.

Fig. 1. (a) is the diagrammatic representation of a roentgenogram taken on a patient with rheumatoid arthritis, and Fig. 1 (b) is a followup film taken ten years later. The sacro-iliac joints are typically bilaterally involved, with blurring and irregularity of the joint margins, due to destructive arthritis and marginal sclerosis.

Fig. 2 (a) illustrates the rheumatoid arthritic spine with calcification of the anterior longitudinal ligament, which is superimposed on the vertebra but not a part of it. (lateral x-ray)

Fig. 2 (b) is the lateral view of the spine in osteoarthritis, showing spur

formation. The spur or osteophyte has a variation in density, and it may be possible to distinguish cortex and cancellous bone, just as one can distinguish them in the body of the vertebra. *The spur is a part of the vertebra.*

Unilateral sacro-iliac arthritis suggests a specific, infectious disease, such as tuberculosis but may occur rarely in rheumatoid arthritis.

Rheumatoid arthritis usually begins in the lower part of the back and extends upward. Rheumatoid arthritis is 9 times as common in men as in women; its onset is usually in the age group from 18 to 35.—Summary of material published in *Annals of Internal Medicine* by H. F. POLLEY, M.D. and C. H. SLOCUMB, M.D., Mayo Clinic. Illustrations drawn for *Clinical Medicine* by T. Lozier.

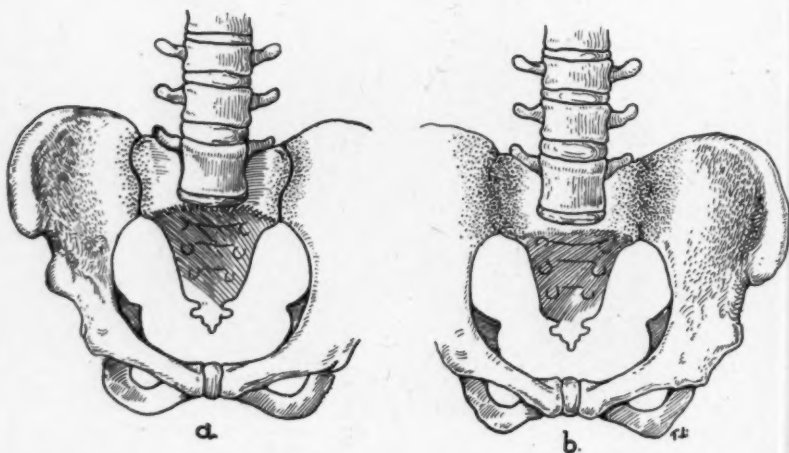


Fig. 1

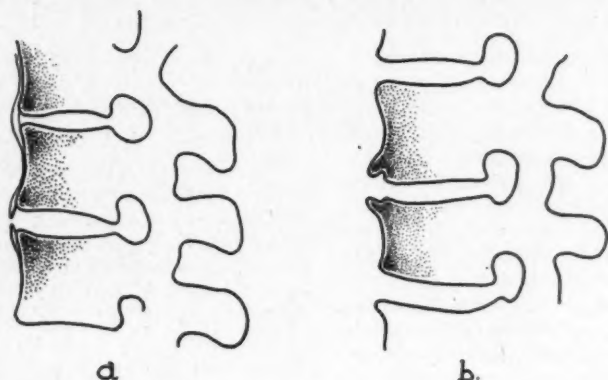


Fig. 2

Pons Asinorum of a Rectal Examination

The pons asinorum of a rectal examination is the cervix uteri, which can be felt projecting through the anterior rectal wall. Even after considerable experience, the inconstant size and shape of the os may, in a given case, cause momentary bewilderment. So great is the pitfall of the cervix that, in making a rectal examination in the female, it should be the rule to find the os deliberately first, and take bearings from that structure. Mistakes from this cause are then impossible.

A pessary in the vagina can be felt per rectum (Fig. 1). It is astounding how often this seemingly obvious fact proves to be the cause of utter diagnostic confusion; a typical example is as follows: Four keen and industrious post-graduate students each digitally examined the rectum of a woman of fifty, who complained of abdominal pain and constipation. Two of them were satisfied that there was a growth in the ampulla of the rectum. Two of them looked

puzzled; they considered that the growth was in the muscular wall of the rectum, or even outside it, and that it was rather smooth. On requesting one of them to follow up the examination by inserting a finger into the vagina (Fig. 1) all agreed that the term 'pons asinorum' was not inapt.

HAMILTON BAILEY, F.R.C.S.
London, England



Fig. 1. Make sure that a woman is not wearing a pessary before expressing an opinion on a lump that can be felt per rectum.

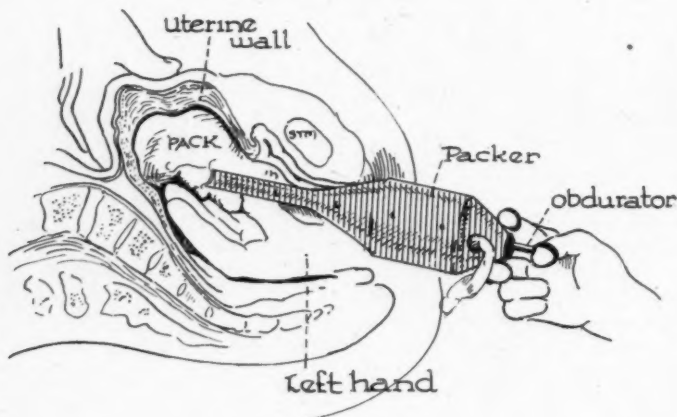
An "Automatic" Post-Partum Uterine Packer

IN few other surgical procedures is time quite so much a vital factor as in the operation of uterine packing for post-partum hemorrhage. In the excitement of sudden and severe bleeding, the sterility of the procedure is often neglected. Furthermore with the usually available instruments, the introduction of the pack into the top of the fundal cavity is difficult and often successful, and the uterus bleeds above the gauze, nullifying the beneficial aspects of an otherwise most effective and life-saving procedure. Of course the administration of pituitrin preparations and of ergonovine intravenously if necessary, after the birth of the portion of the greatest diameter of the child, should be more or less routine.

To facilitate the obstetric operation of uterine packing, the herein described instrument is offered. It is a large size modified Holmes packer with, as integral part, a container for the requisite gauze pack. The length of the tube is about 6 inches and its diameter $\frac{3}{4}$ inches. The large hole is for loading the pack and the small ones are for the

introduction of an antiseptic as hexyl-resorcinol S. T. 37 to reduce bacterial growth after the pack is in place. (Fig. 1.)

The Method of Use — The device loaded, wrapped in towels, and sterilized in the autoclave is kept sterile. When puerperal uterine bleeding is severe, the obstetrician introduces his sterile-gloved left hand high into the uterine cavity. It is of advantage to have someone to hold the fundas through the abdominal wall. Holding the packer in the right hand the introducing tube is gently pushed through the vagina and cervix into the hollow of his left hand in the uterine cavity. The pack is then displaced by the obturator into the uterine cavity. With a side-to-side movement of the packer the pack is snugly and entirely aseptically inserted. All of the pack is expelled gradually, elevating and filling the uterine cavity and upper portion of the vagina. It may be removed in twenty-four to thirty-six hours.—**RICHARD TORPIN, M.D.**, in a reprint from *A. J. Obs. & Gyn.*



Primary Hypertension*

By E. T. BELL, M.D.

Professor of Pathology, University of Minnesota School of Medicine,
Minneapolis, Minn.

Primary Hypertension: Causes of Death

1. Myocardial exhaustion.....50% deaths
2. Coronary disease15% deaths
(65% are cardiac deaths)
3. Apoplexy
 - a. Thrombosis 5% deaths
 - b. Hemorrhage10% deaths
4. Uremia10% deaths
5. Intercurrent disease or accident

1. Hypertension causes an enlarged heart and cardiac decompensation. Fifty per cent of patients with symptoms resulting from hypertension have an enlarged heart and cardiac decompensation, including albuminuria, edema, chronic passive congestion of the liver (tenderness of the liver) and lungs (shortness of breath).

"Nephritis" may be diagnosed but the blood area nitrogen is normal and the albuminuria disappears as the heart becomes compensated.

These patients can be maintained for long periods, under proper treatment.

2. Coronary Disease: The occurrence of coronary symptoms with hypertension is an unfavorable complication. It must be remembered that most coronary disease patients do not have hypertension.

3. Apoplexy: Patients with impending apoplexy complain of vertigo, nausea, headaches.

4. Renal Insufficiency: Patients with hypertension and renal insufficiency have extensive arteriolar involvement. The outlook for treatment is the most unfavorable in this group.

5. Any intercurrent disease may cause death in a hypertensive patient.

Symptoms

A large group of hypertensive patients do not have symptoms. In the early stages of hypertension, the patient may complain of nervousness, insomnia, headache and vertigo.

Mechanisms Influencing Blood Pressure

A spastic contraction of the peripheral arterioles all over the body, increases peripheral resistance and leads to hypertension.

The heart responds to the increased load by compensatory hypertrophy of the left ventricle. This increases the ability of the heart to do work but does not directly help the patient. The heart is stronger than normal but eventually left ventricular failure occurs. If the blood pressure can be moderately reduced, the patient feels better.

The Carotid Sinus: Pressure on the carotid sinus, a nerve plexus which is intimately related to the carotid artery, leads to slowing of the heart or occasionally to the stopping of it. This is especially true in patients with hypertension. A depressor nerve travels from the carotid sinus through the vagus to the heart. Normally this depressor nerve is stimulated by increased pressure inside the artery. Its stimulation leads to slowing of the heart and a falling of the blood pressure.

In the rabbit, the depressor nerve is a separate nerve which may be cut. In a rabbit in whom this depressor nerve has been cut, chronic high blood pressure results.

There is no evidence at present that

* Clinical Medicine staff notes taken from a paper given before the Polk County Medical Society, Nov. 1946, at the Broadlawns Hosp., Des Moines, Iowa.

the carotid sinus has anything to do with hypertension in the human being.

Systolic Hypertension

What about the large elastic arteries? Sclerosis of the aorta may cause a rise in systolic pressure and a decrease in diastolic pressure. This is especially true in older patients. *This is systolic hypertension; it is not primary hypertension.*

Coarctation of the aorta leads to high blood pressure in the arms and normal blood pressure in the legs. In a young person who has high blood pressure, one should feel for the femoral arteries. If pulsations cannot be felt, it may be a case of coarctation of the aorta which can be helped surgically.

Experimentally, one may obstruct large arteries with immediate rise in blood pressure. Upon clamping the aorta of a dog, for example, above the celiac artery, the blood pressure rises within one second. This is much too fast for any humoral mechanism to take place, and must be the result of a direct blocking of the artery. If the clamps are applied farther away from the heart, the rise in pressure is less marked.

Vasomotor System

It appears probable that the most important evidence that the vasomotor system plays is a very important role in primary hypertension.

Excitement tends to cause an increase in blood pressure. Rest and sleep cause a decrease in blood pressure. The patient may be put in the hospital for a period of time and without treatment, the pressure may drop from 20 to 40 Millimeters. Hopeful cases respond in this manner. If the blood pressure drops to normal during sleep, the prognosis is very favorable. In such patients, the moment that he wakes up, the blood

pressure begins to rise, which is much too quick for a pressor substance to act.

A slight decrease in the size of an arteriole decreases the blood flow and results in a marked increase in blood pressure.

Effects of Sympathectomy.

By removal of the sympathetic chain on both sides from tenth thoracic to and including the second lumbar, the whole abdomen and lower extremities may be denervated as far as the sympathetic nerves are concerned. When such patients first stand up they may faint unless the abdomen is supported, as the blood flows into the abdomen without compensatory control.

Sympathectomy removes one cause of increased toxicity of the arterioles. About one-third of patients are improved after sympathectomy. The symptoms are quite often improved even when the blood pressure is not lowered. Retinitis and cardiac embarrassment is often improved. Headaches may be improved.

This operation is only indicated for specific, well studied patients.

Renal insufficiency is a contra-indication as there is no possibility of increasing the blood flow through the kidneys.

Intracranial Pressure and Arterial Pressure

Cushing's experiment of some years ago demonstrates the reciprocal relation between intracranial pressure and arterial pressure. Increasing the intracranial pressure in the experimental animal squeezes the vasomotor center and results in a rise of blood pressure. A clinical parallel is the occurrence of subarachnoid hemorrhage in which the patient is unconscious with a stiff neck and high blood pressure. When a spinal tap is done, and much spinal fluid removed, the intracranial pressure drops, and the blood pressure is lowered. An

ordinary "stroke" or apoplexy does not cause high blood pressure.

The Adrenal Glands

The injection of the extract of the adrenal medulla often results in a transient high rise in blood pressure, due to spasm of the arterioles and a speeding up of the heart. Adrenal tumors (chromaffin cell tumors of the medulla) cause attacks of high blood pressure (paroxysmal hypertension) with periods of normal blood pressure intervening between. Removal of such tumors cures the patient.

In Addison's Disease where the adrenal cortex is destroyed, the blood pressure drops. In adrenal cortical tumors, hypertension occurs.

Kidney Disease

Vascular diseases of the kidneys cause high blood pressure. These include glomerular nephritis, obstruction of the artery and vein, as by a tumor, malignant hypertension and periarteritis nodosa.

Polycystic kidneys cause high blood pressure in 50 per cent of cases. Tubular disease of the kidneys is a rare cause of hypertension. Hydronephrosis rarely causes hypertension except the congenital form.

Pyelonephritis causes no change in blood pressure unless glomerular nephritis is associated with it.

Glomerular Nephritis: The capillaries are blocked in the glomeruli due to proliferation of endothelial cells which block the glomerular capillaries completely, if the condition is severe, resulting in oliguria, even anuria and high blood pressure. The forcing of fluids is not effective as the blood cannot go through the glomeruli. It is

dangerous because the kidney cannot secrete fluids and edema of the lungs occurs.

Embolie glomerulonephritis may cause a similar picture. Chronic glomerulonephritis with scarring and disappearance of the glomeruli results in fixed hypertension.

Studies of the renal arteries in human beings reveals that no person over fifty years of age has a normal renal artery, regardless of blood pressure. In diabetes there is a marked thickening and appearance of hyaline tissue in the intima of the arteries in the kidneys.

Arteriosclerosis in the renal vessels does not necessarily cause hypertension as it is found in hundreds of persons with normal blood pressure. Hypertension intensifies the aging process in the arterioles due to the strain of high blood pressure. In other words, high blood pressure is one thing and arteriolar disease is another.

Biopsies of the kidneys taken during sympathectomy do not indicate arteriolar disease in many such patients.

Summary

Primary hypertension is due to increased spasticity of the arteries throughout the entire body on a physiologic basis. It is influenced by vasomotor and unknown factors. The longer it lasts, the more it intensifies the arteriosclerosis. Arteriosclerosis is a normal aging process, beginning rather early in life.

One must begin treatment before organic changes occur. Treatment may include sympathectomy, medication, the rice-fruit juice treatment, low salt and low fluid intake diet, which has been effective in a few cases.

Streptomycin: A.M.A. Notes

Antibacterial Activity

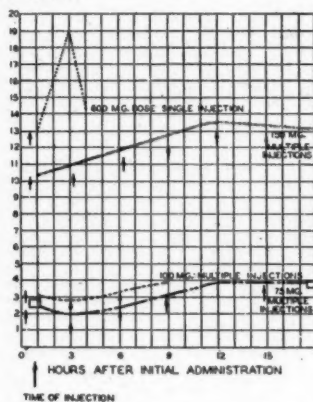
The action of streptomycin is complementary to that of penicillin; in most cases the two drugs are not interchangeable as therapeutic agents.

STREPTOMYCIN		PENICILLIN	
GRAM — NEGATIVE PATHOGENS			
Sensitive Organisms <i>Aerobacter aerogenes</i> (<i>B. lartii aerogenes</i>) <i>Brucella abortus</i> (Bang's bacillus) <i>Br. melitensis</i> <i>Br. suis</i> <i>Eberthella typhosa</i> <i>Escherichia coli</i> (<i>B. coli</i>) <i>Hemophilus ducreyi</i> (Ducrey's bacillus) <i>H. influenzae</i> (Pfeiffer's bacillus)		Sensitive Organisms <i>Hemophilus ducreyi</i> <i>Neisseria catarrhalis</i> <i>N. gonorrhoeae</i> (gonococcus) <i>N. intracellularis</i> (meningococcus)	
Moderately Sensitive Organisms <i>Neisseria gonorrhoeae</i> (gonococcus) <i>Pseudomonas aeruginosa</i> (<i>B. pyocyaneus</i>) <i>Vibrio comma</i> (cholera organism)		Resistant Organisms <i>Aerobacter aerogenes</i> <i>Brucella abortus</i> (Bang's bacillus) <i>Br. melitensis</i> <i>Br. suis</i> <i>Eberthella typhosa</i> <i>Escherichia coli</i> (<i>B. coli</i>) <i>Hemophilus influenzae</i> <i>H. pertussis</i> <i>Klebsiella pneumoniae</i> (Friedländer's bacillus)	
<i>Pasteurella pestis</i> <i>Past. tularensis</i> <i>Proteus vulgaris</i> (<i>B. proteus</i>) <i>Pseudomonas aeruginosa</i> (<i>B. pyocyaneus</i>) <i>Salmonella enteritidis</i> <i>S. paratyphi</i> <i>S. schottmülleri</i> <i>Shigella paradyserteriae</i> <i>Vibrio comma</i>			
GRAM — POSITIVE ORGANISMS			
Streptomycin Sensitive <i>Bacillus subtilis</i>		Penicillin Sensitive <i>Bacillus anthracis</i> <i>B. subtilis</i> <i>Clostridium oedematiens</i> <i>Cl. welchii</i> (gas bacillus) <i>Cl. septicum</i> <i>Cl. tetani</i> (tetanus bacillus)	
Moderately Sensitive <i>Diplococcus pneumoniae</i> (pneumococcus) <i>Mycobacterium tuberculosis</i> (Koch's bacillus) <i>Staphylococcus albus</i> <i>Staph. aureus</i>		Moderately Sensitive <i>Corynebacterium diphtheriae</i> (Löffler's bacillus) <i>Diplococcus pneumoniae</i> (pneumococcus) <i>Staphylococcus albus</i> <i>Staph. aureus</i> <i>Streptococcus pyogenes</i> <i>Ser. a-hemolyticus</i>	
Resistant Organisms <i>Clostridium botulinum</i> (<i>B. botulinus</i>) <i>Cl. oedematiens</i> <i>Cl. welchii</i> (gas bacillus) <i>Cl. septicum</i> <i>Cl. tetani</i> (tetanus bacillus)		Resistant Organisms <i>Mycobacterium tuberculosis</i>	
SPIROCHETAL ORGANISMS			
Streptomycin Sensitive		Penicillin Sensitive <i>Treponema pallidum</i>	
Moderately Sensitive <i>Borrelia noyi</i> <i>Leptospira icterohemorrhagiae</i> (causes Weil's disease) <i>Treponema pallidum</i> (<i>Spirocheta pallida</i>)		Moderately Sensitive <i>Borrelia noyi</i> <i>Bor. recurrentis</i> <i>Spirillum minus</i> <i>Leptospira icterohemorrhagiae</i>	

ABSORPTION and EXCRETION

Intermittent intramuscular injections are recommended for routine administration; for optimal treatment of meningitis, intrathecal, as well as parenteral injections, are imperative.

STREPTOMYCIN BLOOD
CONCENTRATION—
MICROGRAMS PER CC



Streptomycin Blood Levels

(average)

following

Intramuscular Administration

**FOLLOWING PARENTERAL ADMINISTRATION,
STREPTOMYCIN DIFFUSES INTO:**

Amniotic fluid and placental blood
Intraocular fluid
Peritoneal cavity

VIRTUALLY NO DIFFUSION INTO:

Cerebrospinal fluid
Pleural cavity
Prostatic fluid

FOLLOWING ORAL ADMINISTRATION OR INHALATION —

Virtually no absorption—exerts action locally only

Urinary Concentration

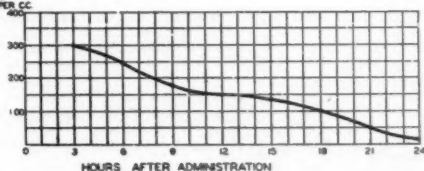
and

Excretion

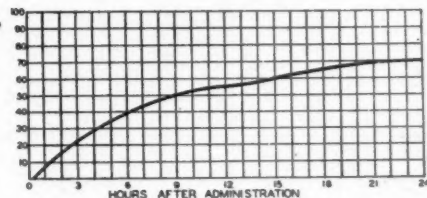
following

Parenteral Administration
of a single dose of 500 mg.

STREPTOMYCIN URINE
CONCENTRATION—
MICROGRAMS PER CC



PERCENT
EXCRETED
IN URINE



STREPTOMYCIN IS EXCRETED ALSO IN THE BILE.

ORIGINAL ARTICLES

Dosage

"Adequate dosage" of streptomycin is that which will produce rapidly and maintain in the body as long as necessary a drug concentration two to four times that to which the specific pathogen has been found susceptible *in vitro*.

Clinical Toxicity

With the increase in purity of streptomycin many of the unpleasant or serious side reactions produced by earlier preparations have disappeared, as is demonstrated by the table and specimens below.

DOSAGE GUIDE*

INFECTION	Average Total Daily Dose—Grams (Varies with sensitivity of pathogen)	Administration	Duration of Treatment—Days	Remarks	
Bacteremia due to susceptible pathogens	2.0—4.0	Intramuscularly or subcutaneously every 3 hours	7—12	Prolonged treatment and observation imperative	
Endocarditis due to sensitive organisms	2.0—4.0	Intramuscularly or subcutaneously every 3 hours	21—30		
Tularemia Ulceroglandular Pulmonic or pleuritic Febrile	0.5—1.0 1.0—2.0	Intramuscularly or subcutaneously every 3-4 hours	5—7 Min. 7	Results excellent	
Urinary Tract Infections Fulminating cases	1.0—3.0 3.0—4.0	Intramuscularly or subcutaneously every 3-4 hours	5—10 10—14	Unobstructed drainage essential to permanent improvement	
Pneumonia due to Friedländer's bacillus	2.0—3.0	Intramuscularly or subcutaneously every 3-4 hours	5—10	Acute cases more responsive than chronic	
Meningitis due to: <i>H. influenzae</i>	0.5—1.0† 0.025—0.05†	Intramuscularly or subcutaneously every 3 hours Intrathecal daily	5—7 7—8	Blood, throat, spinal fluid cultures daily; institute at once additional of effective therapy for any intercurrent infection due to streptomycin-resistant organisms.	
Other susceptible organisms	0.5—1.5 0.05—0.1	Intramuscularly or subcutaneously every 3 hours Intrathecal daily	7—9 7—8		
Tuberculosis With tuberculous meningitis	1.0—3.0† 0.1—0.2	Intramuscularly or subcutaneously every 4 hours† Intrathecal every 1-2 days	90—180 14—42	Helpful in selected cases as an adjunct to proved therapeutic methods (see TOXICITY).	
Empyema	1.0—3.0 0.5—1.0	Intramuscularly or subcutaneously every 3-4 hours Intrathoracically	7 minimum	Results variable	Retain solution at site of local injection a minimum of 6 hours.
Peritonitis due to susceptible organisms	2.0—4.0 0.5—1.0	Intramuscularly or subcutaneously every 3-4 hours Intraperitoneally in selected cases	5—10	Clinical experience is limited	
Liver Abscess and Cholangitis	Same as for peritonitis			Results variable	
Chronic Pulmonary Infections due primarily to susceptible pathogens	1.0—3.0 0.5 (in 10 cc. normal saline solution)	Intramuscularly or subcutaneously every 4 hours Inhalation—1 cc. every 2½ hours	7—10 7—10	Clinical response variable	
Salmonella Infections	3.0—5.0	Intramuscularly or subcutaneously every 4 hours	10—17	Results to date inconclusive	
Typhoid Fever	3.0—5.0	Intramuscularly or subcutaneously every 3-4 hours	10—14	Clinical results to date disappointing	
Undulant Fever (Brucellosis)	4.0—5.0	Intramuscularly or subcutaneously every 3-4 hours	10—14		

*The dosages suggested have been found effective in many cases. However, the treatment of each patient must be individualized due to: (1) wide variations in absorption, circulation, and excretion of the drug by the patient, and (2) differences in susceptibility exhibited by various bacterial strains. Blind adherence to average dosage schedules may rapidly result in the development of "drug fastness" and in therapeutic failure.

†Dosage for children; higher dosage may be required for adults.

‡At present, other dosage regimens are being investigated clinically, but experience is yet too limited to warrant reaching any conclusion concerning their efficacy.

ORIGINAL ARTICLES

Valuable as an adjunct in the Treatment of Tuberculosis

The place of streptomycin in tuberculosis therapy has not been clearly defined. However, it has been found helpful in the treatment of certain types of tuberculosis when administered in adequate dosage for prolonged periods and employed in conjunction with conventional therapeutic methods.

Clinical Results of Streptomycin Therapy

The clearest indication for streptomycin in cases of tuberculosis is in the treatment of recent extensions of pulmonary infection into areas not previously involved, which extensions have occurred despite sanatorium care. It is less effective in chronic cases. However, in some cases of pulmonary tuberculosis, promising results have been obtained from the use of streptomycin preoperatively and postoperatively.

Streptomycin in Surgical Infections

Surgical experience with streptomycin

has been extremely limited and the data which have accumulated thus far are inconclusive. However it is evident that:

1. Streptomycin is capable of quickly sterilizing the blood and other body fluids, provided the infecting organisms are susceptible to a drug concentration which can be maintained;

2. Streptomycin is relatively nontoxic to tissues;

3. Streptomycin has an antibacterial range which limits effectiveness in treating mixed infections in which a significant proportion of the pathogens are streptomycin-resistant. However, when most of the pathogenic organisms are sensitive to the drug, streptomycin may be peculiarly efficacious.

Presently available evidence indicates that streptomycin may be valuable as an adjunct to surgery in:

1. Prophylactic local application to those sutured wounds in which the greatest danger of infection arises from strep-

Toxicity

Side Reactions Sometimes Produced by

Early Less Pure Preparations

Histamine-Like Effects

*Headache, *Flushing of Skin, Nausea and vomiting, Blood pressure drop.

Fever

Neurologic Symptoms

*Vertigo, Diplopia, *Tinnitus, Deafness.

Sensitization Reactions

*Skin Eruptions, Eosinophilia, *Fever, Delayed response (after 7 to 10 days) with fever, arthralgia, lymphadenopathy.

Local Reactions

*Pain or soreness, *Inflammation, *Induration, Paresthesias.

Miscellaneous

Diarrhea, Albuminuria and casts, Purpura hemorrhagica, Malaise, Headache.

*More common or serious effects.

Although some impairment of hearing and vestibular disturbances sometimes appear during the streptomycin therapy and may be irreversible in certain cases if treatment be prolonged, most patients make a satisfactory functional compensation for this disability. Moreover, this does not appear to be a serious complication in the short-term treatment of

Current Highly Refined Product

Neurologic Symptoms

(Rarely occur before 3rd week of treatment)

*Vertigo, *Tinnitus

Impaired hearing (usually seen only after high dosage or intrathecal therapy.)

Sensitization Reactions

(May be sufficiently severe to cause interruption of therapy)

*Skin eruptions, Eosinophilia, *Fever, Delayed response (after 7 to 10 days) with fever, arthralgia, lymphadenopathy

Minimal Local Reactions

Miscellaneous

Occasional transient headache and malaise

The incidence of reactions increases with higher dosages or more prolonged treatment.

most acute illnesses. However, patients who are to receive streptomycin for long periods should be forewarned of the possibility of such injury. The desirability of abandoning prolonged treatment schedules or reducing the dosage at the appearance of low-pitched, roaring tinnitus, vertigo or auditory impairment must be weighed against the gravity of the prognosis in the individual case.

ORIGINAL ARTICLES

tomycin-sensitive organisms in the surgical field (e.g., in intestinal surgery, in the lines of bowel anastomoses and in closure wounds);

2. Local therapy of open wounds infected primarily with susceptible pathogens;

3. Peritonitis due to predominantly sensitive organisms;

4. Preoperative and postoperative

treatment of patients undergoing thoracic, gastrointestinal or urinary tract operations;

5. Surgical treatment of mixed infections when used in combination with other antibacterial agents (e.g., penicillin).

Clinical research to define the optimum surgical employment of streptomycin is in progress.

	RESPONSE	REFERENCES
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Pulmonary Tuberculosis	Most favorable in exudative type; limited value in advanced fibrocaseous lesions; useful as adjunct before and after surgical procedures.	J.A.M.A. 132:778 (1946) Dis. Chest 12:515 (1946) Am. Rev. Tuberc. 54:191 (1946)
Tuberculous Laryngitis and other ulcerative lesions of respiratory tract	Favorable in all reported cases	Proc. Staff Meet., Mayo Clin. 21:127 (1946) J.A.M.A. 132:778 (1946) Am. Rev. Tuberc. 54:191 (1946)
Tuberculous Fistulae	Favorable, if treatment is continued for several weeks after cessation of drainage	J.A.M.A. 132:778 (1946)
Tuberculosis of Bones and Joints	Apparently favorable; experience limited	J. Bone & Joint Surg. 28:864 (1946)
Genitourinary Tuberculosis	Usually good initial response; tendency to recurrence noted	Proc. Staff Meet., Mayo Clin. 21:277 (1946)
Lupus Vulgaris	Initial response favorable; experience limited	Am. Rev. Tuberc. 54:191 (1946)
Tuberculous Peritonitis	Initial response favorable; experience limited	J.A.M.A. 132:778 (1946)
Miliary Tuberculosis	Evidence of early therapeutic effect; ultimate prognosis usually poor	J.A.M.A. 132:778 (1946)
Tuberculous Empyema	Poor in a small series of cases reported	Proc. Staff Meet., Mayo Clin. 20:313 (1945) J. Pediat. 28:269 (1946)
Tuberculous Lesions of Central Nervous System	No apparent response	Am. J. Path. 22:641 (1946)

HUGH J. MORGAN, M.D., and JOHN S. HUNT, M.D., *Vanderbilt University School of Medicine, Nashville, Tennessee*, and LOUIS R. KENT, M.D., and J. MALLORY CARLISLE, M.D., *Medical Division, Merck and Company, Inc., Rahway, N. J.*

EDITORIALS

Are You a Medical Spectator?

MAN is born to act. To act is to affirm the worth of an end, and to affirm the worth of an end, is to create an ideal. — Justice Oliver Wendell Holmes.

The attitude of the spectator is the culminating frustration of man's nature. —George C. Marshall, General, U. S. Army and Secretary of State.

Too many physicians are medical spectators, awaiting what is handed down from on high, waiting to see what "they," the self-appointed leaders of medicine, will say is the right thing to think and to do. Instead of studying their own patients and learning from their own experience, from journals, books and clinical trips, they follow prescribed routines. In the process, they lose originality; they overlook valuable lessons to be gained from their

own patients and practice and thereby lose much of the fun and enthusiasm to be gained in their profession. They hurriedly scan articles and abstracts as they come off the press, without judging them thoroughly in their own minds.

The remedy: Mentally review your patients as people and study their records. On the basis of this evidence, form your own conclusions. Don't be afraid to write to the editor of your favorite medical journal asking for information from the literature or from "authorities"; be flexible enough to accept statements that are supported by facts.

At first, it may be drudgery because it has been easier to listen, copy, and memorize, but you will be thinking. Then it will be productive fun, as you get the feeling of being more than a spectator.

The Expectant Treatment of Perforated Ulcer Is Dangerous

Herman Taylor has suggested (*Lancet* ii, 251, 441, 1946) that all perforated peptic ulcers be treated expectantly by means of constant gastric suction through a tube. This "advance" was promptly abstracted far and wide, but not in *Clinical Medicine*. It did not sound logical to idly observe a potentially fatal condition when its suture was so easy and sure.

John Morley (*Proceedings of Royal Society of Medicine* xl, 126, 1947) writes, "It may be preferable to try such expectant treatment in a patient who is a thoroughly bad risk by reason of bronchitis or cardiac weakness and, gastric suction is a valuable safeguard in such a case, but in the average pa-

tient with early surgical closure under spinal anesthesia, the mortality rate is negligible . . . By Taylor's method, it is impossible to be sure that gastric suction is preventing the escape of duodenal contents into the peritoneum. The stomach may be sucked dry but stenosis or spasm of the pylorus may shelter the duodenal perforation so that bile and duodenal contents pour out in lethal quantities . . ."

A number of patients will no doubt pay with their lives for this original article and its subsequent abstracting. It is easy to publish and easy to copy. *Clinical Medicine* endeavors to filter out the dangerous, unproved assertion, no matter how attractive.

Clinical Notes and Abstracts



What the Child Should Be

The older idea was that children were born messy little animals who must be converted into cherubs with iron repression of their sexual instincts and by stern squelching of their aggressive tendencies, if they happen to be inconvenient or troublesome to adults.

In contrast, we are at last recognizing the baby as a real human being right from the start, entitled to the same fundamental rights demanded by mature adults. He requires expression of all his instinctual drives and functions. He enjoys affection and approval, and he rebels at harsh treatment, but is readily led into good behavior when his needs and limitations are understood. He is capable of developing a rugged inner strength of character, if allowed reasonable freedom to test his instinctual needs against the realities of life. Character acquired this way is a useful tool in life. Character which is founded upon terrified submission to uncomprehended adult rituals is a weak and dangerous sort.

Every physically sound baby is a potentially fine human being. The only thing that can prevent this realization is his parents. If he turns out a mess, it is they who have done the messing up. Accordingly, we physicians should have some genuine personal concern over outlining parenteral qualifications.

1. The best test of emotional maturity is marriage itself. If marriage is sound a year or more, this is a test of reality. Parents should not have children who cannot enjoy married life; preferably contraception should be urged during the first year.

Mutual sexual exhibitionism among children is expressed with natural curi-

osity. It becomes pathologic only when linked to disapproval by strong words of defiance.

Tantrums

Tantrums, stealing, lying and great destructiveness are unfailing signs of hostility and poor adult management of the child's aggressive impulses. This group of problems will yield to patient, professional study with the necessary parenteral cooperation.

Stammering

Stammering is one of the most important of all danger signs in early childhood. It is an anxiety reaction brought on by violently repressed hostility toward someone in the family. The net result is that it may appear in adult life and only as a speech defect is it a companion of masked sadism and sexual impotence.

Phobias

Severe childhood phobias are an unfailing sign of frustration and insecurity. They symbolize the deeper and tragic fears that may persist through life.

Shyness and Hostility

Children who are excessively shy or constantly hostile toward other children have been severely frustrated in the fulfillment of their personality needs.

Jealousy of the new baby. Children of less than three or four years nearly always find it impossible to make emotional adjustment to a new baby in the family, even with good adult management. The child of less than three is still a very much dependent baby and he feels antagonism toward competitors.

When we are consulted by a young couple with a baby on the way, we

should suggest reading, preferably "Babies are Human Beings" by Dr. C. A. Aldrich. This book covers the general philosophy of infant management and considers in special detail the problems of the first year of life.

A sound emotional relationship between the parents, with a deep affectionate regard for each other, expressed in a mutually satisfying sexual relationship results in a display toward children of a balanced affection and a tolerant discipline that creates few problems. They are also responsive to professional advice.

When husband and wife live in a state of perpetual sexual antagonism, their attitudes toward children take on abnormal intensities because the children play them against each other.

When *bed-wetting* occurs, in an apparently trained child, it is sure sign of some severe inner current frustration; usually punishment over masturbation or a violent jealousy.

Thumb-sucking and masturbation are strictly normal within wide limits and should never be dealt with harshly. Their importance should not be overvalued. They become significant only when linked with severe parental disapproval, or when substituted by a frustrated child's other emotional needs that have been denied.

The parents must face a child's sexual curiosity. Children should know all about the true sexual differentiation and function — not just reproduction. They want to know about sex anatomy, about their own sexual feelings, about the integration of sex with everyday life. They are sure to learn the sexual language and concepts of furtive child companionship. Parents should anticipate this, introducing all the one syllable anglo-saxon words together with accurate definitions. Parents should interpret sex in a simple, socialized manner and contrast this with the smirking, obscene interpretations of playmates. Only in this way can a parent retain any real power to have a constructive influence in the child's unfolding sexual ideas and conduct.

Children will live up to fine social ideas if given all the facts, lots of faith

and good will and the flexible tolerance of their occasional mistakes.

Successful parenthood must always require a great deal of time and energy, given in an affectionate spirit without demand for reward.

Discipline and guidance are great, inescapable parental responsibilities and often present trying situations. From *J. District Columbia M. J.*, June 1946.

Chronic Right Iliac Fossa Pain

Apart from the appendix there are certain causes of chronic pain in the right iliac fossa. These are: (1). Inguinal or femoral hernia; (2). chronic inflammatory lesions of the inguinal glands; (3). mesenteric adenitis; (4). regional ileitis; (5). cecal distension; (6). loading of the cecum associated with constipation; (7). spasm of the cecum; (8). cancer of the cecum; (9). pyelitis, stone in the ureter and hydronephrosis; (10). chronic (tuberculous) psoas abscess; (11). certain gynecological conditions; (12). functional conditions.

In appendicitis cases, too much reliance should not be placed on an x-ray examination. Failure of the appendix to be visualised in the barium examination does not mean that it is pathological. Sixty per cent of appendices lie behind the cecum and when the latter is filled with barium the retrocecal appendix obviously is invisible. Irregular filling of the appendix, kinking, or apparent fixation during the screening are not definite evidence that the appendix is diseased.—*Dr. S. H. Wass, Guy's Hospital Gazette*, England, Feb. 15, 1947.

Whooping Cough Therapeutic Serum

A hyperimmune whooping cough serum obtained by actively immunizing healthy young adults who had had whooping cough in childhood and obtainable from the Philadelphia Serum Exchange or Cutter Laboratories, Berkeley, California (Hypertussis) is lifesaving in infants under 6 months with severe whooping cough. One vial is given as soon as the diagnosis is made, another the next day and the final dose on the fourth day.—*E. H. Watson, M. D. in Amer. Pract.*, June 1947.

Chronic or Intermittent Diarrhea

Any chronic or intermittent diarrhea characterized by large, frothy stools with a "sour-milk" odor suggests the diagnosis of steatorrhea. Look for pathogenic organisms in the stools, since excessive fat excretion may accompany or follow infectious diarrhea of bacterial or parasitic origin. X-ray study of the gastrointestinal tract, including a plain film of the abdomen to show the pancreatic stones, is carried out. If no calculi are found, the steatorrhea may be due to: 1. Other pancreatic disease (cyst, tumor, inflammation, duct obstruction); 2. disease of intestines, mesentery or lymph nodes; 3. idiopathic "sprue."

If the glucose tolerance curve is normal or diabetic and there is no response to adequate amounts of liver extract and folic acid, the condition is not "idiopathic" and surgical exploration of the pancreas and intestine is indicated. A low fat diet is helpful in all causes of steatorrhea.—H. T. RICKETTS, M.D. in *Med. Clin. N. Amer.*, Jan. 1947.

Benadryl: A Technic for Its Administration

Benadryl is mildly toxic but not cumulative. It does produce unpleasant side reactions in at least half the patients taking the drug. These reactions consist of dryness of the mouth, drowsiness, light-headedness, fatigue, blurring of the vision, and occasionally nausea and vomiting. The degree of discomfort will vary with the dose as well as the individual. However, tolerance for the drug appears to improve rapidly, so that the symptoms enumerated above frequently disappear within the first twenty-four to forty-eight hours, even though the patient continues to take the medication.

The dosage necessary to produce symptomatic relief will differ for each subject and will often vary in the same individual from time to time. Symptomatic relief may result from 50 mg. a day, or as much as 600 mg. daily. Lesser quantities of the drug are necessary in hay fever than in bronchial asthma.

Procedure

For all adult patients a schedule is prepared in which the initial dose is 150 mg. of benadryl daily, Apportioned

as noted below. On each successive day the dose is increased by 50 mg., until a maximum of 600 mg. per day, if necessary, is reached (Table I). Patients are told to take their medication after each meal and again before retiring for the night. The schedule is arranged so that the dose is increased progressively late in the day.

Every patient is instructed to stop increasing the dose as soon as symptomatic improvement begins, and to remain on his effective dose for a minimum period of two weeks. At the end of that time medication is discontinued. If symptoms recur, the patient resumes treatment with 150 mg. or less. If there is no relief with this dosage in one or two days, he starts again with the previously effective dose.

Table I. Schedule for Administering Benadryl. (Dose Expressed in Milligrams).

Day	Breakfast	Lunch	Supper	Bedtime
1	50	50	50	50
2	50	50	50	50
3	50	50	50	100
4	50	50	100	100
5	50	100	100	100
6	100	100	100	100
7	100	100	100	150
8	100	100	150	150
9	100	150	150	150
10	150	150	150	150

HERMAN REINSTEIN M.D., and THOMAS H. MCGAVACK, M.D., in *N.Y. State M. J.*, 1947

Causes of Fatal Shock After Injury

Contributing factors in shock death include (1) the use of large quantities of plasma to combat lowered blood volume while loss has been of whole blood; (2) unrecognized, or, uncontrolled bleeding; (3) inadequately, or poorly timed, blood replacement with whole blood; (4) late surgery in those cases in which there has been gross contamination of peritoneal and pleural cavities with contents of the gastrointestinal tract, or in which sepsis is developing; (5) failure to recognize or to control things leading to cardiac and respiratory embarrassment—including blood or air in the thoracic cavity, cardiac tamponade, tracheobronchial obstruction from blood or mucus, painful chest wall wounds and gastric dilatation; (6) failure to control pain by morphine, novocaine nerve block, proper splinting of painful extremity wounds, and timely surgery.—HOWARD E. SNYDER, M.D. (Winfield, Kan.) in *American Jrnl. of Surgery* Feb., 1947.

Body Cast for Protruded Intervertebral Disc

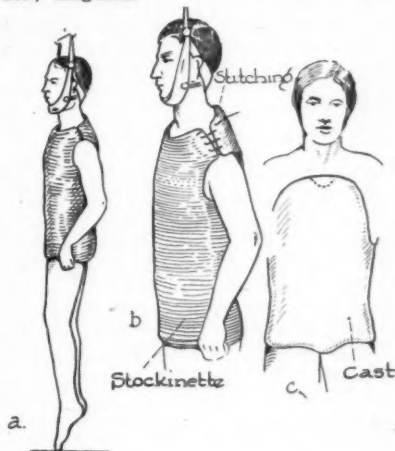
We get a considerable number of cases of low back and sciatic pain in this hospital, as we are in the center of a coal-mining area and there are also numerous heavy industries. The concept of the protruded intervertebral disc has been a great help to us in the management of these patients. We make the diagnosis in general on the history of injury with low back pain later radiating down the back of one lower limb. On physical examination, there is limitation of flexion mainly in the lumbar spine and straight leg-raising on the affected side goes to about 60 degrees only; jerks may be diminished and there may be muscle wasting in the more severe cases.

When the diagnosis has been made, the patients are put in plaster jacket with head suspension. The head halter in use is supplied by the London Splint Company of Weymouth Street, W.1. A halter is put on the patient and hauled up by a rope and pulley until the patient's toes are just lightly touching the floor. Stockinette is then drawn over the patient's chest and abdomen and rapidly stitched up across both shoulders. A plaster cast is applied with two surgeons working simultaneously and a nurse soaking the bandages. It is made to extend from about an inch above the sternal notch to a point well down over the symphysis pubis and fits as accurately as possible. The usual pressure points are padded with adhesive felt before the cast is applied. Twenty

four hours later the cast is trimmed to give reasonable comfort, and forty-eight hours after application the patient is allowed out.

As regards abdominal expansion, the patient is instructed to breathe deeply as this part of the cast is being applied and usually there is room, but if the patient complains of a feeling of constriction, an oval window is cut before discharge.

The cast is worn for six weeks, and as I said in my article, almost invariably gives relief and in many cases a cure. I have in fact, only performed open operation on 2 out of some 50 cases.—Morriston Emergency Hospital, Medical Sup't., H. Duncan Davies, London, England.



Urethritis: Irritable Bladder of Allergy

Food allergy can cause mucous membrane edema, congestion, mucous discharge and smooth muscle spasm in any part of body. (Bladder, urethra, possibly the ureters)

Urethritis may occur following ingestion of tomatoes, wheat bread, strawberries, with discharge which should contain eosinophiles mucous, few pus cells.

Bladder allergy: One may see hive-like swellings. Burning in bladder and urethra may be severe and persistent;

spasms and pain in urogenital tissues frequent.

History may be obtained of personal or family hay fever, asthma, eczema, urticaria, angioneurotic edema or abdominal allergy. Possibly may get food dislikes or idiosyncrasy history.

Skin tests are often negative especially in adults.

Treatment; "Elimination diets" based on such history and skin tests. Absolute co-operation of patient is essential.

Thumbnail Therapeutics



Estrogens for Hyperthyroidism

The injection of 5 mg. of diethylstilbestrol intramuscularly once or twice (in more severe cases of hyperthyroidism) weekly causes a reduction in an elevated basal metabolic rate, a gain in weight, and an increase in blood cholesterol. This dosage is continued for a period of 4 weeks after which it is reduced to once weekly or once every two weeks, for 6 months.—ERNEST H. PLANCK, M.D., in (Anniston, Alabama). *Southern Med. J.*, Oct. 1946.

Nicotinic Acid for Headache

The intravenous injection of 100 mg. of niacin or sodium nicotinate will relieve headaches following spinal puncture, migraine, sinusitis, malaria or idiopathic headaches. The relief of headache is correlated with the degree of peripheral flushing of the skin.—J. W. GOLDZIEHER, M.D., in *J.A.M.A.*, May 11, 1946.

Aminophylline in Biliary Colic

Aminophylline, given intravenously in doses of 7.5 grains, (0.5 Gm.) is superior to any of the other drugs commonly used for relieving the pain of biliary colic. The drug acts by direct action on the smooth muscles and not by central nervous action.—R. COLE, M.D., in *Amer. J. Surg.*, 72, 719, 1946.

Podophyllin for Urethral Caruncle

The application of podophyllin 25 percent ointment, on one or two occasions, cures may urethral caruncles. The use of a 25 percent suspension of podophyllin mineral oil might avoid the subsequent burning—W. M. FLAGG, M.D., in *Urol. & Cut. Rev.*, Apr. 1947.

Treatment of Bartholin Abscess

Bartholin cysts or abscesses may be satisfactorily treated in the office by aspiration, followed by irrigation of the cavity with Hexylresorcinol (ST 37) and installation for retention of 20% suspension of sulphathiazole.—E. H. GREENE, M.D. in *J.M.A. Georgia*, 35, 315, 1946.

Shock

Every severely wounded person is shocked, especially if there is accompanying soft tissue damage and hemorrhage, such as occurs with compound fractures. Shock should be anticipated and prevented as much as possible. When the patient is severely shocked, the general treatment must precede local treatment. "Fractures and Dislocations for Practitioners," — E. O. GECKELER, (Williams & Wilkins).

Aminophylline for Asthma

Aminophylline intravenously or by suppository, 5 or 7½ gr. (0.3 or 0.48 gm.) is effective for bronchial asthma, when given twice daily. A sedative should also be given at bed time.—L. E. PRICKMAN, M.D., in *Proc. Staff Meet. Mayo Clinic*, Aug. 9, 1945.

Erythroblastosis Fetalis

Infants with anemia and slight jaundice (cases of erythroblastosis fetalis) respond readily to proper blood transfusions. The more serious type of jaundice should be treated with the injection of blood and the simultaneous withdrawal of blood. 500 units of heparin are injected through the infusion needle. The infant's blood then flows freely from a radial artery puncture.—A. S. WIENER, M. D., *Jrnl. of Lab. and Clinical Medicine*, Sept. 1946.

DIAGNOSTIC POINTERS



Hoarseness

A common pitfall in the diagnosis is the presence of a positive Wasserman test for syphilis in a patient with a laryngeal lesion. The appearances of syphilis may resemble other diseases, but it is not at all a common laryngeal disease. A positive blood test should never be regarded as sufficient to corroborate the diagnosis of syphilis of the larynx. As a result a prolonged course of treatment may follow, only to discover later that carcinoma or tuberculosis of the larynx is present. Before making a diagnosis of syphilis, therefore, it is necessary to have an x-ray of the chest and an examination of the sputum in order to rule out tuberculosis and also to do an adequate biopsy to rule out cancer. When cancer and tuberculosis have been definitely excluded by such means, then a diagnosis of syphilis may be considered.—DR. S. F. CLERF, in *Medical World*, England, July 4, 1947.

Therapeutic Test for Gout

The intravenous injection of sodium salicylate 15½ gr., sodium iodide 15½ gr. and colchicine 1/100 gr. gives a definite, favorable response in patients with gout. Patients with arthritis received no relief. Blood uric acid determinations in gouty patients range from 4.0 to 13 mg. per 100 cc.—H. A. NISSEN, M.D. in *Journal-Lancet* July 1947.

Pernicious Anemia

The diagnosis of pernicious anemia may be made on: 1. Clinical aspects including achlorhydria, 2. True, large oval red blood cells and 3. Response to liver extract. Leukocytosis is the earliest sign that the patient is going to respond to liver extract treatment.—WYMAN RICHARDSON, M.D. in *Amer. Pract.*, June, 1947.

Dyspnea

Dyspnea may be the only symptom of coronary occlusion. This is especially true in the negro. There may be an exacerbation, usually sudden, of decompensation of several years duration. Ankle edema may be present in all cases.—WM. S. HUNTER, M.D. in *J.A.M.A.*, May 4, 1946

Intermenstrual Bleeding

Bleeding between menstruations (metrorrhagia) is always pathologic, and at any age should rouse suspicion of a malignant growth of the uterus or ovaries. The most common cause of metrorrhagia and the one most often forgotten during the child bearing age is a complication of pregnancy, which must be excluded in every patient.—G. D. ROYSTON, M.D., in *J. Iowa S. M. Soc.*, June 1947.

Gallbladder Disease and Cardiac Symptoms

Disease of the gallbladder produces cardiac pain (angina pectoris). Distention of the gallbladder results in electrocardiographic changes, in the human being. Removal of a diseased gallbladder may cure anginal pains.—HOWARD WAKEFIELD, M.D. in *Med. Clin. M. Amer.*, Jan. 1947.

Aging or Nutritional Deficiency?

As persons of both sexes reach the age when loss of teeth is common, there is an equal incidence of nutritional deficiencies. Women in the child bearing age are often deficient. The aging should have proper nutritive therapy. Conditions brought about by lack of proper nutrition have often been judged to be simply a part of growing old, particularly in the southern United States.—T. D. SPDES, M.D. in *J. of Gerontology*, 1946.



NEW BOOKS

Studies in Hypertony and the Prevention of Disease

By I. Harris, M.D., et al., William Wood, 1946. \$3.00.

This small volume reports rather limited animal experiments regarding the influence of calcium and cholesterol upon the production of hypertension with some observations on dietary factors and the interrelationships of other electrolytes. There are sections on certain more or less related biochemical, physiological and clinico-pathological matters. Both the breadth and depth of the work is limited, despite which rather broad and far-reaching conclusions are made. Unfortunately, it is obvious as early as the introduction that the senior author has certain preconceptions and a difference of opinion with the British Medical Research Council which attitudes are not conducive to receptiveness on the part of the reader. Certainly the content would have been better suited to publication as separate papers in the suitable experimental journals, if at all. The attitude of the work is such as to preclude open-minded acceptance even if the strength of the experimental evidence was considerably greater.—C.M.D., M.D.

Progress in Gynecology

Edited by Joe V. Meigs, M.D., Professor of Gynecology, Harvard Medical School, and S. H. Sturgis, M.D., Assistant Surgeon, Massachusetts General Hospital.—Grune and Stratton. 1946. \$7.50.

A series of articles portrays the growth and physiology of the genital tract, diagnostic methods including vaginal smears, functional disorders, endocrine interrelationships, sterility and reproduction, treatment of infections, benign growths and malignant tumors, operative technics and pre and postoperative care. The papers are excellently done and are of real value to gynecologists and those who spend considerable time in this field. The surgical papers are well illustrated.

Psychology of Sex

A Manual for Students. By Havelock Ellis. Emerson Books. 1946. \$3.00.

A very well written introduction to the field of sex, considered from its mental and physical aspects. The normal is well portrayed and the common deviations considered in a frank, informative way. Any intelligent person would be the better for reading it.

Muscle Testing

Technics of Manual Examination. By Lucille Daniels, M.A., Marian Williams, M.A. (Stanford University Physical Therapy), Catherine Worthingham, M.A., National Foundation for Infantile Paralysis.—W. B. Saunders Co. 1946. \$2.50.

A loose leaf text which describes muscle topography, muscle function, joint range and nerve distribution, and pictorial representation of the normal and defective range of motion of all peripheral muscles. Of immense value in testing for paralyses and muscle weakness and for standardizing and recording such changes. Students of anatomy should have such a text to clearly explain muscle function.

Clinical Allergy

A Monograph on the Management and Treatment of Allergic Diseases for General Practitioners and Students of Allergy. By Alexander Sterling, M.D., with Bea Sterling, Hollander, M.D.—International Universities Press. 1947. \$5.00.

A manual discussing the practical aspects of the management of allergic patients, complete with detailed case histories. The author points out common errors in recognition of offending agents and in treatment of allergic syndromes.

Physical Chemistry of Cells and Tissues

By R. Höber, M.D. The Blackston Co. 1945. \$9.00.

This is an excellent review of some of the problems of biophysics written by contributors who are outstanding in the field. Although the book would interest very few practicing physicians, it should be of considerable value to those concerned with biophysics. The authors have done an excellent job.—G. E. B.

Electrocardiography in Practice

By A. Graybiel and P. D. White.—W. B. Saunders Co. 1946. \$7.00.

This second edition is much superior to the first edition. Like the first edition it consists of essentially 320 electrocardiograms representing various patterns with their interpretations, a brief summary of the clinical findings and comments. This manual should be employed with other monographs on the subject, for it is only suited as a source of practice material. It is not to be recommended to one who has not already learned the fundamental principles of electrocardiography.—G. E. B.